

## CLAIMS

1. A process for the preservation of plant materials comprising the steps of crushing the plant materials to separate a juice portion and a pulp portion, thermally dewatering said pulp portion to form a dewatered pulp, 5 concentrating said juice portion to form a syrup, and combining said dewatered pulp and said syrup to form a preserved plant material.
2. A process according to claim 1 wherein plant material is crushed in a roll or screw press to separate the juice portion from the pulp portion.
3. A process according to claim 2 wherein plant material is crushed 10 in a roll crusher where the plant material is passed between one or more nips of opposed counter-rotating rolls.
4. A process according to claim 3 wherein plant material is crushed in a roll crusher having multiple rolls with multiple nips.
5. A process according to any one of claims 1 to 4 wherein the 15 pulp portion is thermally dewatered by heating the pulp portion with hot gasses in a dryer.
6. A process according to claim 5 wherein dryer is selected from rotating drum dryers and flash type dryers.
7. A process according to claim 5 wherein the pulp portion is 20 conveyed by the drying gasses, multiple-tray, moving bed and fluidized bed dryers.
8. A process according to claim 5 wherein superheated steam is used as a drying medium to thermally dewater the pulp portion.
9. A process according to claim 8 wherein the steam is heated by a 25 heat exchanger using the condensation of steam at a higher pressure.
10. A process according to claim 8 wherein the steam is heated by a heat exchanger using hot gas.
11. A process according to claim 8 wherein the dryer uses superheated steam and operates at elevated pressures.
- 30 12. A process according to claim 8 wherein the pulp portion is fed into and extracted from the dryer using a rotating valve, a screw feeder, or a plug feeder.
13. A process according to claim 12 wherein the plug feeder is

operated by a piston having a reciprocal stroke.

14. A process according to claim 13 wherein pulp portion is fed radially into a bore of the plug feeder with the piston in a first position and the pulp portion in the bore is driven by the piston through the bore as the piston  
5 is driven to a second position before the piston is reciprocated to the first position.

15. A process according to claim 8 wherein a bed of pulp is fluidised whereby contact between the pulp and the superheated steam drying medium is achieved by upward flow of the steam through a bed of the pulp.

10 16. A process according to claim 15 wherein the dryer for dewatering pulp includes a drying chamber comprising a perforated plate for supporting a bed of pulp.

17. A process according to claim 16 wherein the perforated plate is disposed above a plenum containing superheated steam wherein  
15 superheated steam is intermittently passed through the perforated plate whereby the bed of pulp is intermittently fluidised.

18. A process according to claim 8 wherein the steam is forced through a bed of pulp portion from above and collected below a perforated plate.

20 19. A process according to claim 1 wherein the juice is concentrated to the syrup by removing water from the juice by evaporation.

20. A process according to claim 19 wherein the evaporation is carried out in stages wherein a first evaporation stage is supplied with steam and subsequent evaporation stages are heated by steam produced by the  
25 preceding stage.

21. A process according to claim 18 wherein the steam is supplied by extraction from the dryer.

22. A process according to claim 1 wherein the plant material is selected from the group consisting of sugar cane, sweet sorghum and  
30 lucerne.

23. A process according to claim 22 wherein the plant material is sugar cane.

24. A process according to claim 23 wherein the sugar cane is

cleaned prior to the step of crushing the sugar cane.

25. A process according to claim 23 wherein the moisture content of the pulp portion is less than 55% by weight.

26. A process according to claim 25 wherein the moisture content of the pulp portion is in the range of from 46% to 52% by weight.

27. A process according to claim 25 wherein the moisture content of the pulp portion of crushed sugar cane is about 48% by weight.

28. A process according to claim 23 wherein the moisture content of the dewatered pulp is in the range of from 10% to 35% by weight.

29. A process according to claim 23 wherein the moisture content of the dewatered pulp is in the range of from 12% to 15%.

30. A process according to claim 23 wherein the juice portion derived from the crushing of the sugar cane contains 15% to 23% of soluble components.

31. A process according to claim 30 wherein the soluble components include sucrose, glucose, fructose, other organic matter and soluble salts.

32. A process according to claim 23 wherein the solids content of syrup derived from the juice of sugar cane is in the range of from 70% to 75% by weight.

33. A process according to claim 23 wherein the syrup is at a temperature in the range of from 65°C to 70°C and the dewatered pulp is at a temperature of at least 90°C in the step where the syrup and the dewatered pulp are combined to form preserved sugar cane.

34. A process according to claim 23 wherein the preserved sugar cane may be formed into blocks of mixed syrup and dried bagasse under pressure whereby the potential for rehydration is reduced.

35. A process according to claim 34 wherein the blocks are wrapped in plastic film.

36. A process for refining sugar comprising the steps of preserving sugar cane according to the process of claim 1, and subsequently refining the preserved sugar in a sugar refining facility.

37. A process according to claim 36 further including the step of

transporting the preserved sugar cane to the sugar refining facility.